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The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS): Establishing a New Interdisciplinary Self-Assessment for Health Providers

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ABSTRACT

These three studies provide initial evidence for the development, factor structure, reliability, and validity of the Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS), a new interdisciplinary LGBT clinical self-assessment for health and mental health providers. Research participants were voluntarily recruited in the United States and United Kingdom and included trainees, clinicians, and educators from applied psychology, counseling,

psychotherapy, and primary care medicine. Study 1 (N = 602) utilized exploratory and confirmatory factor analytic techniques, revealing an18-item three-factor structure (Clinical Preparedness, Attitudinal Awareness, and Basic Knowledge). Study 2 established internal consistency for the overall LGBT-DOCSS (α = .86) and for each of the 3 subscales (Clinical Preparedness = .88, Attitudinal Awareness = .80, and Basic Knowledge = .83) and two-week test–retest reliability (.87). In study 3 (N = 564), participant criteria (sexual orientation and education level) and four established scales that measured LGBT prejudice, assessment skills, and social desirability were utilized to support initial content and discriminant validity. Psychometric properties, limitations, and recommendations are discussed.

Keywords: LGBT competence, interdisciplinary, international, self-assessment

It is now well documented that lesbian, gay, bisexual, and transgender (LGBT) individuals living in the United States and United Kingdom experience very similar medical and mental health disparities that can significantly diminish health, wellbeing, and quality of life (Chakraborty, McManus, Brugha, Bebbington, & King, 2011; Haas et al., 2010; Institute of Medicine [IOM], 2011; King et al., 2003). Such health and psychosocial concerns underscore the need for competent mental health and medical care tailored to the unique needs of LGBT individuals; however, many health and mental health professionals "are not trained to provide care for LGBT individuals, and providers themselves report a lack of knowledge about the issues facing their sexual- and gender-minority patients" (IOM, 2011, p. 65). In addition to training deficiencies, healthcare clinicians "have been socialized in a society that stigmatizes sexual and gender minorities, and this context inevitably affects their knowledge and perceptions of LGBT people" (IOM, 2011, p. 32).

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There are many ways in which the lack of LGBT clinical competence can contribute to LGBT health and mental health disparities. Lack of basic knowledge and adequate training can result in clinicians failing to screen for important health and mental health problems that disproportionately impact LGBT individuals (IOM, 2011). Explicit and implicit bias amongst healthcare practitioners can negatively impact clinical competence and services for LGBT individuals (Bidell, 2014b; Burke et al., 2015; Clift & Kirby, 2012; IOM, 2011; Sabin, Riskind, & Nosek, 2015). Researchers have found that LGBT individuals often postpone health services and decide not to disclose their sexual orientation or gender identity if they experience or even anticipate an unskilled or biased healthcare provider (Durso & Meyer, 2013; IOM, 2011). Using data from the large English General Practice Patient Survey of over 2 million people, researchers (Elliot et al., 2014) found that LGBT individuals in the UK were much more likely to report unfavorable experiences with their primary healthcare. The researchers concluded, "fears of discriminatory treatment by a provider may also lead to patients postponing healthcare, which can further impair health" (p. 15). Considering the profound impact of LGBT health and mental health disparities, there is an imperative to promote and enhance LGBT clinical competence. The purpose of this research project was to further the development of competent LGBT clinical services through the creation of a reliable and valid LGBT self-assessment for health and mental health professionals.

LGBT Clinical Competence and Self-Assessment

LGBT clinical competence has steadfastly emerged and been adopted across the health sciences and mental health professions as the recommended form of ethical clinical care. For example, the Association of American Medical Colleges (AAMC, 2014), Association for Lesbian, Gay, Bisexual, and Transgender Issues in Counseling (ALGBTIC, 2010; 2013),

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American Psychological Association (APA, 2012; 2015), British Psychological Society (BPS, 2012), and Royal College of General Practitioners (RCGP, 2015a; 2015b) have all developed exemplary and comprehensive guidelines for working with LGBT clients predicated on the rejection of prior biased and prejudicial notions about sexuality and gender. These professional recommendations and guidelines affirm LGBT people have a sexual orientation and gender identity that is normal, healthy, and legitimate. In addition, many community-based organizations and healthcare agencies have also developed LGBT clinical competence training, education, and policies; two such examples are the National LGBT Health Education Center at The Fenway Institute (http://www.lgbthealtheducation.org) in Boston, Massachusetts and the free webinar series, *Quality Healthcare for Lesbian, Gay, Bisexual & Transgender People*, developed and offered by GLMA: Health Professionals Advancing LGBT Health, the largest and oldest LGBT healthcare professional association (see Bidell & Stepleman, this issue for expanded listing of LGBT educational resources).

While differences exist between varying health professions' LGBT clinical competency guidelines, three core domains are common features across psychology, counseling, and medicine. These organizations have all highlighted that to work competently, ethically, and effectively with LGBT clients and patients, practitioners, at a minimum, need to: (a) gain awareness of personal and societal LGBT prejudicial attitudes and biases, (b) develop appropriate clinical experience and skills to effectively treat LGBT clients/patients, and, (c) gain a working knowledge of LGBT psychosocial and health issues. This tripartite model – consisting of attitudinal awareness, skill, and knowledge – draws heavily on earlier multicultural competency scholarship regarding ethnically and racially diverse client groups (Sue et. al., 1982).

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In concert with the emergence of LGBT professional treatment guidelines, applied social scientists have developed four reliable and valid self-assessment scales for working with lesbian, gay, and bisexual (LGB) mental health clients, including the: (a) LGB-Affirmative Counseling Self-Efficacy Inventory (LGB-CSI; Dillon & Worthington, 2003), (b) Lesbian, Gay, and Bisexual Affirmative Counseling Self-Efficacy Inventory – Short Form (LGB-CSI-SF; Dillon et al., 2015), (c) Sexual Orientation Counselor Competency Scale (SOCCS; Bidell, 2005) and, (d) LGB Working Alliance Self-Efficacy Scale (LGB-WASES; Burkard, Pruitt, Medler, & Stark-Booth, 2009). Based on LGB affirmative clinical guidelines, these assessment scales all draw on the ternary multicultural competency theoretical framework and are also encoded within a framework of clinical self-efficacy, which refers to a clinician's self-assessment of his or her confidence to effectively work with LGB clients (Burkard et. al., 2009; Dillon & Worthington, 2003). Significantly lower levels of LGB attitudinal awareness, self-efficacy, clinical skills, and knowledge have been detected in mental health trainees and practitioners that report: (a) higher levels of socio-political and religious conservatism, (b) lower levels of both personal and clinical contact with LGBT people, (c) a non-LGBT identity, (d) having lower levels of professional education or training, and (e) a school counseling specialization (Bidell, 2005, 2012; 2014a; 2014b; Bidell & Whitman, 2013; Burkard et al., 2009; Dillon et al., 2015; Dillon & Worthington, 2003).

The health sciences, for the most part, have not developed LGBT clinical self-assessments utilizing psychometric test construction techniques. Researchers (Sanchez, Rabatin, Sanchez, Hubbard, & Kalet, 2006) developed a questionnaire that was based on an existing HIV/AIDS attitudes measure (Yedidia, Berry, & Barr, 1996) and found that "medical students with increased clinical exposure to LGBT patients tended to perform more comprehensive

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histories, hold more positive attitudes toward LGBT patients, and possess greater knowledge of LGBT health care concerns than students with little or no clinical exposure" (p. 21). Wilson and colleagues (2014) extended this work by modifying 11 attitudinal items so they would be relevant to both medical and mental health providers at various levels of training. They named the modified self-assessment the Attitudes Toward LGBT Patients Scale (ATLPS) and utilized a 5-point Likert type scale (1 = *strongly disagree* to 5 = *strongly agree*). The internal stability of the ATLPS was strong (α =.84) and a preliminary factor analysis supported a 3-factor structure explaining 64% of the variance. While the preliminary findings from the ATLPS are promising, the assessment lacks comprehensive test construction and psychometric evaluation such as expert review of test-items, confirmatory factor analysis, test–retest reliability, and comprehensive content validity testing (Tabachnick & Fidell, 2013; Worthington & Whittaker, 2006).

Using the ATLPS as a unidimensional measure, the researchers (Wilson et al., 2014) examined how health science and mental health students' personal and professional factors predicted their attitudes about LGBT issues. They found similar relational patterns between various student characteristics and ATLPS scores that have been noted with the four aforementioned mental health-based LGB assessments. Specifically, lower ATLPS scores (i.e., higher levels of LGBT-based prejudicial attitudes) were found amongst students that reported being heterosexual, being more religious, and having lower levels of sexuality-focused professional education. An inclusive linear model revealed that only lower religiosity and higher familiarity with other religious perspectives were predictive of more favorable attitudes toward LGBT individuals. As this was the first published study that included students from both psychology and the health sciences, it was interesting to note that psychology students had the

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highest overall ATLPS scores of any professional groups followed closely by medical students. While nursing students had the weakest overall ATLPS scores, their scores were only statistically lower in comparison to psychology students.

These five LGBT clinical self-assessment scales represent important scientific contributions, but also have specific limitations. The SOCCS, LGB-CSI, LGB-CSI-SF, and LGB-WACES only measure self-perceptions of sexual orientation competence and efficacy (i.e., lesbian, gay, or bisexual orientations), hence they are not gender identity (i.e., transgender) inclusive. While the ATLPS uses the inclusive 'LGBT' acronym, all but three questions focus on sexual orientation and none of the questions specifically inquiry about transgender issues. To date, no valid and reliable transgender clinical self-assessment instrument has been published "and represents an important area for future research" (Bidell & Whitman, 2013, p. 119). The five self-assessments, with the possible exception of the ATLPS, were not initially developed or normed within an interdisciplinary framework and none of the scales included participants from outside the US. As such, the existing scales tend to be professionally segregated and isolated within a US-centric perspective. The goal of this research project was to address these limitations by creating a reliable and valid self-assessment of LGBT clinical skills, attitudinal awareness, and basic knowledge within an interdisciplinary and multinational context.

Study 1: Item Development and Factor Analyses

Item Development

Test items for the LGBT-DOCSS were adapted from the Sexual Orientation Counselor Competency Scale (SOCCS; Bidell, 2005) and the two revised versions of the SOCCS (Bidell, 2015). The SOCCS is one of the most widely utilized LGB competency self-assessment instruments in mental health research (Bidell & Whitman, 2013). The original SOCCS includes a

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total of 29 items with three subscales, including Skills (11 items specific to LGB counseling), Awareness (10 items examining LGB prejudice), and Knowledge (eight items focusing on general LGB psychosocial issues). The SOCCS uses a 7-point Likert scale (1 = *Not At All True*, 4 = *Somewhat True*, and 7 = *Totally True*) with higher scores indicating greater levels of sexual orientation counselor competence.

The psychometric testing for the SOCCS was conducted using one sample of participants (N = 312) and included counselor education and applied psychology students, educators, practitioners, and supervisors. The author directs readers to Bidell's 2005 study for specific information regarding item and scale development, factor structure, and reliability and validity data. Two revised versions of the SOCCS (Bidell, 2015) were recently published by the Association of American Medical Colleges. One version was modified to include language common across mental health and health science disciplines and the other version was adapted to specifically focus on transgender competence. Neither version has undergone psychometric evaluation.

Drawing on the original and modified versions of the SOCCS (Bidell, 2005; 2015), 37 items were selected and adapted by the principle investigator based on recommendations by Worthington and Whittaker (2006) for developing items with maximum content validity. The underlying goal was to develop scale items that: (a) examined LGBT knowledge, clinical skills, and prejudicial attitudes; (b) incorporated current LGBT clinical competence research and professional guidelines; (c) utilized interdisciplinary language applicable to both the health and mental health professions; and, (d) were relevant within an international context (AAMC, 2014; APA, 2012, 2015; Bidell, 2005; 2015; BPS, 2012; IOM, 2011; RCGP, 2015a; 2015b). A group of ten experts in LGBT healthcare were asked to rate each of the 37 test items on level of

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importance (essential, somewhat essential, or not essential) and on competency domain (prejudicial attitudes, clinical skill, or knowledge). The expert group included individuals from the US, UK, and EU working in applied psychology, nursing, counseling, psychotherapy, and primary care medicine. With the goal to develop LGBT competency items that cut across both health and mental health disciplines, only items rated as 'essential' by a minimum of 80% of the experts were considered for further factor structure, validity, and reliability analyses. A total of 20 items met this requirement and focused on LGBT personal prejudices, clinical experiences, professional training, and health/mental health disparities. The 17 items that were removed almost exclusively included those initially designed to assess LGBT knowledge competence.

Exploratory and Confirmatory Factor Analyses

Exploratory factor analysis (EFA) was employed to examine the factor structure of the scale items and confirmatory factor analysis was used to test factor stability.

Method

Participants and Procedures. Research participants included mental health and primary care medicine trainees, practitioners, and educators recruited in the US and UK. An initial exploration of overall missing data due to participants not responding to all test items was conducted. A total of 23 participants did not complete at least 90% of the overall survey test items and were deleted listwise (Schlomer, Bauman, & Card, 2010). The remaining participants (N = 602) made up the final sample population for conducting the EFA and CFA. Based on the large number of eligible research participants and the relatively high participant-per-item ratio (approximately 30:1), the accepted scale development recommendation to randomly split the total sample into two equal groups for the EFA and the CFA was followed (Tabachnick & Fidell, 2013; Worthington & Whittaker, 2006). Both sample groups for the EFA and CFA included 301

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research participants. For complete educational, professional, and demographic breakdown of the two factor analytic samples see Table 1.

The survey questions were administered to participants in both the US and UK using two formats (in-person paper surveys and on-line computer administration). In both countries, the research protocol was reviewed and approved by the university institutional review boards for the utilization of human subjects in research. All US participants (*n* = 360) were recruited via an email invitation at six designated university health sciences and/or mental health training programs across the country and survey completion was done on-line using Google Docs. Participants were provided study information and informed consent when logging onto the secure survey site. After reading and acknowledging informed consent, participants were able to gain access to the survey questions. UK participants were primarily recruited in-person (*n* = 174) by the principal investigator using paper and pen survey administration during a clinical course or in-service training at a mental health or a health sciences training program. The remaining 68 UK participants were recruited either during the aforementioned trainings or by snowball sampling and completed the survey questions on-line using the same Google Docs site and procedures previously described for the US on-line research participants. UK participants recruited in-person were provided informed consent and an overview of the study both verbally and in writing. Paper surveys were handed out to all individuals present. The researcher and any course instructors left the room while individuals provided informed consent and completed the surveys to eliminate any perceived pressure to participate in the research study. On-line survey data was uploaded into an SPSS 22 data matrix and paper surveys were manually entered into the same data matrix by research assistants. No identifying information was collected from any

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research participant and all statistical analyses were conducted and reported in aggregate to assure anonymity.

Measures. Participants were asked to complete a basic demographic questionnaire that inquired about age, gender identity, sexual orientation, race/ethnicity, highest level of education, and healthcare field. In addition to the demographic questions, participants completed the newly developed test items based on questions from the original and modified versions of the SOCCS (Bidell, 2005; 2015). Participants were provided a 7-point Likert response scale that was modified from the original SOCCS to one using the anchors 'Strongly Disagree' to 'Strongly Agree' (1 = *Strongly Disagree*, 4 = *Somewhat Disagree/Agree,* 7 = *Strongly Agree*). The scale numbering and directionality remained the same.

EFA Results

Using SPSS 22, a preliminary factor analysis was conducted with the 20-items to obtain an overall depiction of the factor structure and an initial review of possible items to consider for deletion. After this process, the final EFA provided a proposed factor structure for the LGBT-DOCSS. A nominal percentage (less than 1%) of cases were missing data for any specific item and the established practice of expectation maximization was utilized to estimate missing data values (Schlomer et al., 2010).

The two common extraction methods, principal-components analysis and common factor analysis (i.e., principal-axis factoring), were considered. The purpose of the latter technique "is to understand the latent factors or constructs that account for the shared variance among items. . . [and] is more closely aligned with the development of new scales" (Worthington & Whittaker, 2006, p. 818). While the LGBT-DOCSS is based on the existing SOCCS, items underwent considerable modification and development. The magnitude of changes and the goal to create a

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new interdisciplinary LGBT clinical scale provided the rationale for selecting a principle axis factor analysis to explore the new scale's factorial structure. Both forms of rotation were also considered. Orthogonal rotation is recommended when the factors are uncorrelated while oblique methods assume factors are correlated (Tabachnick & Fidell, 2013; Worthington & Whittaker, 2006). Based on the moderate to strong correlations between some of the subscales on the SOCCS and LGB-CSI (Bidell, 2005; Dillon & Worthington, 2003), it was projected similar relationships would be found between factors and items on the new instrument. With this in mind, an oblique rotation (promax rotation with Kaiser normalization) was selected.

Initial EFA. The initial EFA produced a three factor solution with communality estimates ranging from $\hat{h}$ = .15 to $\hat{h}$ = .86. Existing EFA recommendations and multiple criteria including inductive reasoning and an iterative process to examine specific items and latent factors were utilized to examine potential factor structures (Tabachnick & Fidell, 2013; Worthington & Whittaker, 2006). Items with less than a .35 loading factor or cross-loadings above .15 as well as items loading onto a factor with three or less items were explored for removal. In addition to these criteria, the scree plot of eigenvalues (Cattell's scree test) was examined to help support criteria for factor retention. The scree test implied a three- or four-factor solution would be optimal, accounting for 56.92 to 60.43% of the cumulative explained variance. Two items loaded jointly on a single factor and having failed to meet the three-item requirement, were eliminated from further analyses. The two removed questions were: (a) *I develop my clinical skills regarding LGB clients/patients via consultation, supervision, and education*; and, (b) *I develop my clinical skills regarding transgender clients/patients via consultation, supervision, and education*.

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Final EFA. The extraction method used for the final EFA was principal axis factoring and the rotation method was oblique (promax with Kaiser normalization). Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) sampling adequacy test were used to determine the factorability of the data set. The Bartlett's test was significant ($p < .001$) and the KMO value was .84. Both tests supported the suitability of the study data for factor analysis. The final EFA produced a three-factor 18-item solution explaining 58.54% of the cumulative variance for the new LGBT-DOCSS. The EFA promax rotation with Kaiser normalization converged in four iterations. Also supporting the viability of a three-factor solution were visual results from Cattell's scree test.

Factor 1 was labeled *Clinical Preparedness* with seven items that inquire about LGBT clinical experiences, training/supervision, assessment skills, and overall feelings of competence with LGBT clients. This subscale accounted for 29.16% of the variance with extracted communalities ranging from $\hat{h} = .32$ to $\hat{h} = .67$. Factor 2 was labeled *Attitudinal Awareness* and consisted of seven items all reversed scored. This factor accounted for 18.55% of the variance with extracted communalities ranging from $\hat{h} = .19$ to $\hat{h} = .76$. Attitudinal Awareness items inquired about participants' awareness of their LGBT-based prejudicial attitudes. Four items loaded on the third factor that was labeled *Basic Knowledge* and accounted for 10.84% of the variance with extracted communalities ranging from $\hat{h} = .49$ to $\hat{h} = .75$. These items inquired about awareness of basic LGBT health disparities. Table 2 lists the structure coefficients for the new 18-item LGBT-DOCSS.

Table 3 lists the mean scores for the overall LGBT-DOCSS and for each of the three subscales. Factor intercorrelations were small between the Attitudinal Awareness subscale and

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the Basic Knowledge (r = .13) and Clinical Preparedness (r = .15), subscales and moderate between Clinical Preparedness and Basic Knowledge subscales (r = .43).

CFA Results

Based on recommended best practices in scale development (Kline, 2005; Worthington & Whittaker, 2006), findings from the EFA and broader clinical competency theory, two competing models were tested: (a) one-factor model with all 18-items loaded onto a single factor, and (b) a three-factor model based on results from the EFA. Structural equation modeling was utilized to confirm the factor structure using Mplus 7.3 (Muthén & Muthén, 1998–2015). Based on expert recommendations (Kline, 2005; Muthén & Muthén, 1998–2015; Worthington & Whittaker, 2006), the following indices were utilized to assess an acceptable CFA model fit: (a) comparative fit index (CFI) > .90-.95, (b) Tucker-Lewis Index (TLI) > .90, (c) root mean square error of approximation (RMSEA) < .05; and, (d) standardized root mean square residual (SRMR) < .10. The sample data was both skewed and kurtotic, thus the Satorra-Bentler chi-square method of estimation was employed. It should be noted that using the chi-square test (or the Satorra-Bentler chi-square in the case of this study) has been increasingly criticized because of the test's sensitivity to sample size (Kline, 2005; Worthington & Whittaker, 2006). Ideally a researcher is looking for a non-significant chi-square (i.e., p-value greater than .05) indicating the model structure is a good fit with the data. The chi-square test is often significant when there is a large number of variables and/or participants, which supports a false decision to reject a model that has a reasonably good fit to the data (Kline, 2005; Worthington & Whittaker, 2006). Because of these issues, a significant Satorra-Bentler chi-square was not used in isolation to reject the potential fit of a proposed model.

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Based on Kline (2005), the CFA fit indices are reported in the following structure: (a) Satorra-Bentler Chi-Square with degrees of freedom and significance, (b) RMSEA with confidence intervals, (c) CFI, (d) SRMR, and (e) TLI. The fit for the one-factor model was poor, S-Bchisq (135, $N = 301$) = 1457.552, $p < .001$, RMSEA = .189 (90% CI [.180, .198), CFI = .277, SRMR = .223, TLI = .181. For the second model with 3-factors, the fit was better, but still did not reach acceptable levels, S-Bchisq (132, N = 301) = 387.921, p < .001, RMSEA = .084 (90% CI [.074, .094]), CFI = .860, SR-MR = .062, TLI = .838.

One issue with the second model fit centers on the high level of intercorrelations between very similar items on the same factor. An additional CFA was preformed to further explore the viability of a three-factor model, but was modified to address item intercorrelations (Byrne, 2012). By correlating the residual errors of six highly related item pairs with correlation coefficients ranging from .63 to .76, the three-solution model fit improved to acceptable levels, S-Bchisq (126, N = 301) = 252.981, p < .001, RMSEA = .061 (90% CI [.050, .071]), CFI = .931, SRMR = .062, TLI = .916. While the RMSEA was slightly above the preferred value, the overall data from the modified CFA provided adequate support for the conceptual three-factor model and cohesion for the overall structure of the scale from the EFA. Table 3 provides total LGBT-DOCSS and subscale scores for the CFA sample group. Appendix A includes the suggested format for administering the LGBT-DOCSS and scoring instructions.

Study 2: Reliability Estimates and Test–Retest Reliability

The purpose of Study 2 was to examine reliability estimates of internal consistency as well as measure 2-week temporary stability of the LGBT-DOCSS.

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Reliability Estimates

The full factor analytic sample (*N* = 602) was utilized to determine internal consistency estimates for the LGBT-DOCSS (see Table 1 for demographic and professional information). Cronbach's coefficient alphas were calculated for the total LGBT-DOCSS and for each subscale. Results indicated strong internal consistency, specifically: (a) .86 for the overall LGBT-DOCSS, (b) .88 for the Clinical Preparedness subscale, (c) .80 for the Attitudinal Awareness subscale, and (d) .83 for the Basic Knowledge subscale.

Test–Retest Reliability

Participants and Procedures. Temporary stability of the LGBT-DOCSS was assessed by determining 2-week test–retest reliability with a group of 27 undergraduate counseling, psychology, and medical students recruited in the UK. Participants ranged in age from 19 to 27 (*M* = 20.81, *SD* = 1.73). The majority of students were female (92.6%) and heterosexual (92.6), regarding ethnicity, participants identified as White/Caucasian (59.2%), Asian (14.8%), Mixed/Other (14.8%), and Black/African decent (11.2%). Nineteen participants were either psychology or counseling undergraduate students and 8 were medical students.

Participants were voluntarily recruited in-person by a research assistant during a scheduled class session. An informational sheet, informed consent, demographic survey (age, educational background, gender identity, ethnicity), and the new 18-item LGBT-DOCSS were given to all present. Informed consent was also provided verbally. To remove any perceived pressure to participate, the research assistant and any course instructors left the room while individuals provided informed consent and completed the surveys. For the second administration, participants were given a copy of the informed consent form and the newly developed LGBT-DOCSS test items and the research assistant and course instructors vacated the

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room while students decided to give informed consent and participate. Students were also asked to develop an anonymous code (i.e., 2-digit day of birth, postal code, and a self-chosen symbol) to match surveys from the two administrations.

Results. Test–retest correlation coefficients based on the 27 undergraduate research participants were strong for the overall LGBT-DOCSS (r = .87), for the Clinical Preparedness subscale (r = .88), for the Attitudinal Awareness subscale (r = .85), and for the Basic Knowledge subscale (r = .86).

Study 3: Construct Validity

Construct validity was assessed by comparing relationships between scores on the LGBT-DOCSS with specific participant characteristics and with scores on established assessment scales (Downing, 2003). Hypotheses were generated about these relationships based on findings from existing research that examined mental health and health providers' LGBT attitudes, skill, and knowledge (Bidell, 2005, Bidell & Whitman, 2013; Burkard et al., 2009; Dillon & Worthington, 2003; Sanchez et al., 2006; Wilson et al., 2014).

Two demographic criteria were utilized to establish the validity of the LGBT-DOCSS and included participants' sexual orientation and level of education. Based on existing research, it was hypothesized that participants reporting higher levels of education and those self-identifying as part of the LGBT community would have significantly higher scores on the LGBT-DOCSS. Convergent construct validity was established by examining correlations between LGBT-DOCSS scores and established measures of: (a) transgender prejudice using the Genderism/Transphobia subscale from the Genderism and Transphobia Scale-Revised-Short Form (GTS-R-SF; Tebbe, Moradi, & Ege, 2014); (b) sexuality and sexual orientation prejudice using selected sexuality-based items from the Right-Wing Authoritarianism-Short scale (RWA-

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S; Rattazzi, Bobbio, & Canova, 2007); and, (c) self-efficacy of LGB assessment skills utilizing the Lesbian, Gay, and Bisexual Affirmative Counseling Self-Efficacy Inventory (LGB-CSI; Dillon & Worthington, 2003) Assessment Skills subscale items. Based on the literature, it was hypothesized that: (a) the LGBT-DOCSS Clinical Preparedness subscale would correlate the strongest with the Assessment Skills subscale on the LGB-CSI scale, followed by the LGBT-DOCSS Basic knowledge subscale; and, (b) the LGBT-DOCSS Attitudinal Awareness subscale would correlate the strongest with the two measures of prejudice (RWA-S and GTS-R-SF). To support discriminant validity, it was hypothesized that overall scores on the LGBT-DOCSS would minimally correlate with the Marlowe-Crowne Social Desirability-Short Form-A (MCSD-SF-A, Reynolds, 1982), an established measure of social desirability.

Methods

Participants and Procedures. All research participants were recruited in the US and UK and included students (undergraduate and graduate trainees), practitioners, and educators from the fields of psychology, counseling, applied psychology, psychotherapy, and primary care medicine. The total number of research participants utilized for validity testing was 564 and approximately 54% were recruited from the UK. Table 1 provides the demographic background and educational/professional information for this sample.

The institutional review boards at the sponsoring universities in the US and UK reviewed and approved the study protocols for the utilization of human subjects in research. All research participants were recruited in the US and UK using two formats (in-person paper surveys and on-line computer administration). All US participants (n = 261) were surveyed using a secure website and a small number of UK research participants (n = 58) completed the surveys on-line using the same Google Docs secure website. US participants were recruited from the same sites

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used for the factor analytic study using an email invitation. UK participants that completed the surveys on-line were recruited either in-person at a professional training or by snowballing techniques. Participants were provided informed consent when logging onto the secure survey site and needed to acknowledge informed consent to gain access to the survey questions.

The majority of UK participants were recruited in either a university lecture course or training seminar (n = 245) by the principal investigator using paper and pen survey administration. Informed consent and an overview of the study were provided verbally and in writing. Surveys were handed out to all individuals and the researcher and course instructor left the room while individuals provided informed consent to eliminate any perceived pressure to participate. No identifying information was collected by the principal researcher. Survey data was either downloaded or manually entered into an SPSS 22 data matrix and statistical analyses were conducted and reported in aggregate to assure anonymity.

Measures. A demographic questionnaire was administered that inquired about gender identity, age, sexual orientation, race/ethnicity, highest level of education, and healthcare field. In addition to the demographic questions, participants completed the newly developed LGBT-DOCSS (Table 3 lists LGBT-DOCSS mean scores for Study 3 participants) and test items from three additional assessment scales, including:

Right-Wing Authoritarianism-Short scale (RWA-S). The RWA-S scale (Rattazzi et al., 2007) is an abbreviated version of Altemeyer's (2006) 22-item instrument that has been utilized extensively in social science research to assess socio-political conservatism. Right-wing authoritarianism refers to an individual that is resistant to change and willing to support authorities in order to maintain the status quo and social order. Such individuals strongly support traditional social norms and typically harbor negative attitudes toward progressive sexuality and

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LGBT social issues (Whitley & Lee, 2000). Altemeyer reported an alpha coefficient of .90 for the 22-item version. Convergent validity has been established by showing strong correlations between the original RWA scale and measures of social dominance, political-economic conservatism, and LGBT prejudice (Whitley & Lee, 2000). The RWA-S scale includes 15 items and was tested using a translated version of the original scale amongst college students in Sweden. The researchers selected 15 items "through exclusion of items, one at a time, with the lowest possible contribution to reliability, and at the same time displaying the highest correlations with SDO [Social Dominance Orientation scale]" (Rattazzi et al., 2007, p. 867). For the current study, five items focusing on sexuality and sexual orientation were selected and included language about "sexual morality", "homosexuality", "sexual preference", "gays and lesbians", and "premarital sexual intercourse". The original RWA scale utilized an eight point Likert scale, ranging from -4 *Very Strongly Disagree* to +4 *Very Strongly Agree*. To minimize participant fatigue with multiple scale changes, the 7-point Likert scale utilized for the LGBT-DOCSS test-items was used (i.e., 1 = *Strongly Disagree* to 7 = *Strongly Agree*). Cronbach's alpha for the current study was .70.

Genderism and Transphobia Scale-Revised-Short Form (GTS-R-SF). The GTS-R-SF (Tebbe et al., 2014) assesses prejudice and violence propensity toward transgender individuals and was developed to be a shortened version of the original Genderism and Transphobia Scale developed by Hill and Willoughby (2005). The GTS-R-SF was tested using both EFA and CFA producing a final scale with 13-items and two factors (Genderism/Transphobia and Gender-Bashing subscales). Internal consistency (Cronbach's alpha) was reported for the total GTS-R-SF scale as .90, .93 for the Genderism/Transphobia subscale, and .86 for the Gender-Bashing subscale. The two subscales were minimally correlated ($r = .33$, $p < .001$). Validity for the GTS-

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R-SF was shown by the high positive correlations found with three accepted measures of negative attitudes toward transgender individuals, LGB people, and women. The GTS-R-SF scale utilizes the same Likert scale as the LGBT-DOCSS (1 = *Strongly Disagree* to 7 = *Strongly Agree*). For the current study, only the 8-item Genderism/Transphobia subscale was utilized. Cronbach's alpha for the current study was .93.

Lesbian, Gay, and Bisexual Affirmative Counseling Self-Efficacy Inventory (LGB-CSI). The LGB-CSI (Dillon & Worthington, 2003) is a valid and reliable assessment of a counselor's belief about being able to successfully complete various counseling tasks with lesbian, gay, and bisexual clients. The LGB-CSI is a 32-item scale that consists of five factors (Application of Knowledge, Advocacy Skills, Self-Awareness, Relationship, and Assessment Skills). The full scale has excellent internal consistency (α =.96). Criterion validity was demonstrated by showing that participants reporting LGB training as well as self-identifying as LGB had significantly higher LGB-CSI scores. Concurrent validity was established by showing the LGB-CSI correlated strongly with other assessments measuring counselor self-efficacy and LGB prejudice. The LGB-CSI utilizes a Likert scale ranging from 1 (*Not Confident*) to 6 (*Highly Confident*). For the current study, only the four items from the Assessment Skills subscale were included (α =.89). Cronbach's alpha for the current study was .94.

Marlowe-Crowne Social Desirability-Short Form-A (MCSD-SF-A). The MCSD-SF-A scale (Reynolds, 1982) is a shortened version of the original Marlowe-Crowne Social Desirability scale. (MCSD; Crowne & Marlowe, 1960). Both forms are commonly utilized to assess social desirability patterns–the tendency to answer questions that will be viewed positively by others. The MCSD-SF-A scale includes 11-items that are scored as 1 (*True*) and 2 (*False*). Five items are reversed scored. Higher scores are indicative of someone more influenced to

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respond in socially desirable ways. The Kuder-Richardson reliability estimate for the MCSD-SF-A scale was .74. Reynolds (1982) showed that the MCSD-SF-A scale was highly correlated with the original 33-item MCSD scale ($r = .91$, $p < .001$). Validity was established for both the MCSD scale and the MCSD-SF-A scale by showing positive correlations with other impression management assessments. Cronbach's alpha for the current study was .74.

Results: Construct Validity using Participant Criterion

To evaluate the relationships between sexual orientation/gender identity and LGBT-DOCSS scores, participants were divided into two groups that self-identified as either heterosexual/cisgender ($n = 413$) or LGBT ($n = 143$). Eight participants were coded as missing values because they opted not to provide information regarding their sexual orientation or gender identity. A one-way analysis of variance (ANOVA) was employed to assess differences between LGBT and heterosexual/cisgender participants. The hypothesis was supported, specifically LGBT participants had significantly higher LGBT-DOCSS scores ($M = 5.52$, $SD = .81$) versus their heterosexual/cisgender counterparts ($M = 4.61$, $SD = .86$), $F(1, 554) = 121.65$, $p < .001$, $\eta^2 = .18$.

Participants were categorized in the following educational categories to explore the relationships between educational attainment and LGBT-DOCSS scores: (a) undergraduate psychology or counseling students ($n = 87$), (b) graduate counseling or psychotherapy students ($n = 202$), (c) doctoral students in applied psychology or advanced medical students ($n = 96$), (d) licensed/certified master-level counselors or psychotherapists ($n = 52$), and (e) licensed doctoral level applied psychologists or general practice medical doctors ($n = 127$). The one-way ANOVA to assess differences between participants' five different education levels and overall LGBT-DOCSS scores was significant. Participants with higher levels of educational and professional

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attainment scored significantly higher on the LGBT-DOCSS, $F(4, 559) = 84.90$, $p < .001$, $\eta^2 = .38$.

Subsequent Bonferroni post hoc analyses were conducted to compare the five levels of education. As education level increased by group, corresponding LGBT-DOCSS score were significantly higher at each educational juncture (i. e., from undergraduate to master-level to doctoral-level; *p*s < .001 to .05). The only non-significant relationships were the LGBT-DOCSS scores between the two practitioner groups. Thus, master-level counselors/psychotherapists and doctoral level applied psychologists/medical doctors did not have any significant differences in their LGBT-DOCSS scores ($p = 1.00$). For each educational group, the mean scores on the LGBT-DOCSS were: (a) 3.87 (*SD* = .73) for undergraduate psychology and counseling students, (b) 4.62 (*SD* = .74) for master-level counseling or psychotherapy trainees, (c) 4.90 (*SD* = .70) for doctoral-level psychology or medical trainees, (d) 5.57 (*SD* = .63) for licensed/certified master-level counseling or psychotherapy practitioners and, (e) 5.56 (*SD* = .81) for PhD-level psychologists and medical doctors.

Results: Convergent and Discriminant Validity

Bivariate correlations were calculated to establish relationships between the LGBT-DOCSS (total score and subscale scores) with scores on the RWA-S scale, GTS-R-SF, LGB-CSI, and the MCSD-SF-A scale. Correlation coefficients are reported in Table 4. The data confirmed the hypotheses developed to test convergent and discriminant validity. Specifically, the Assessment Skills subscale on the LGB-CSI correlated the strongest with the LGBT-DOCSS Clinical Preparedness subscale ($r = .69$, $p < .001$) and less strongly with the LGBT-DOCSS Knowledge subscale ($r = .51$, $p < .001$) and weakly with the LGBT-DOCSS Attitudinal Awareness subscale ($r = .12$, $p < .05$). The LGBT-DOCSS Attitudinal Awareness subscale

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correlated the strongest with the GTS-R-SF Genderism/Transphobia subscale (r = -.84, p < .001) followed by the sexuality items on the RWA-S scale (r = .62, p < .001). The LGBT-DOCSS demonstrated strong discriminant validity as evidenced by the weak correlation between scores on the LGBT-DOCSS and the MCSD-SF-A scale.

Discussion

Findings from these three studies support the initial factor structure, reliability, and validity of the LGBT-DOCSS. The exploratory and confirmatory factor analyses substantiated three distinct subscales for the LGBT-DOCSS. Based on item grouping, they were labeled: (a) Clinical Preparedness, examining LGBT training and clinical experiences; (b) Attitudinal Awareness, assessing LGBT prejudice; and, (c) Basic Knowledge, inquiring about LGBT health and mental health disparities. This tripartite structure aligns with multicultural and LGB counselor competency models that emphasize attitudes, skills, and knowledge needed to work competently with multiculturally diverse clients (Bidell, 2005; Bidell & Whitman, 2013; Sue et. al., 1982). Designing an interdisciplinary and LGBT inclusive assessment presented unique issues when developing items and establishing factorial structure. When experts rated the importance of newly developed test items, knowledge-based questions represented the overwhelming majority that did not meet the inclusion criteria for expert review, and were hence eliminated from further psychometric testing. Agreement on what constitutes essential LGBT clinical knowledge is likely driven by professional practice domains and represents an area of future examination.

The confirmatory factor analysis presented a unique issue that warrants consideration. There has been criticism that existing LGBT clinical assessment tools obfuscate important in-group differences because they either do not include all or differentiate between the specific

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groups within the LGBT community (Bidell & Whitman, 2013). And as previously noted, no psychometric validated transgender clinical scale has yet to be published. While the LGBT-DOCSS was developed to expressly address these concerns, a modification needed to be made in order to obtain a CFA with a satisfactory model fit; specifically, the residual errors between six pairs of related items were correlated (Byrne, 2012). These pairs primarily inquired about similar issues, but from either a sexual orientation (i.e., lesbian, gay, bisexual) or gender identity (i.e., transgender) perspective. For example, two questions on the Clinical Preparedness subscale, (i.e., *I feel competent to assess a person who is LGB in a therapeutic setting* and *I feel competent to assess a person who is transgender in a therapeutic setting*) differ only by client/patient sexual orientation or gender identity. It reasons that a practitioner with LGB-clinical experience likely has familiarity with transgender patients. In fact, these items were strongly correlated ($r = .73$, $p < .001$) and such similarities between items could inflate residual error. Researchers will need to consider similar adjustments to CFA methods if they are developing multiple test items that are analogous, but differentiate between the sub-groups within the LGBT community.

The LGBT-DOCSS demonstrated good internal consistency for the overall scale, as well as the Clinical Preparedness, Attitudinal Awareness, and Basic Knowledge subscales. These reliability data are especially salient when considering the diversity of research participants respective of professional background and nationality. The initial test–retest reliability of the LGBT-DOCSS was strong ($r = .87$), however research participants were all undergraduate students and primarily female. Future research is warranted to establish test–retest reliability across broader demographic, educational, and professional parameters.

Study 3 provided initial evidence of content and discriminant validity for the LGBT-DOCSS and its subscales. The weak correlation between the LGBT-DOCSS and a shortened

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version of the Marlowe-Crowne Social Desirability scale (r = -.16) supported discriminant validity and also indicated relatively low levels of response bias due to social desirability factors. Initial content validity for the LGBT-DOCSS was established by examining relationships between LGBT-DOCSS scores and specific participant criteria (i.e., sexual orientation and education level). Results from this study were congruent with past research findings (Bidell & Whitman, 2013; Sanchez et. al., 2006; Wilson et. al., 2014) and showed that participants reporting either advanced education or an LGBT identity had significantly higher scores on the LGBT-DOCSS. Even though such findings are now well documented, there remains a need for researchers to better understand characteristics and experiences that enhance or inhibit LGBT clinical competence.

Content validity was also ascertained by comparing relationships between scores on the LGBT-DOCSS to scores on three established measures, including clinical self-efficacy (LGB-CSI), transphobia (GTS-R-SF), and LGB/sexuality prejudice (RWA-S). As hypothesized, these correlational relationships supported concurrent validity for the overall LGBT-DOCSS and for each of the three subscales. Items on the RWA-S scale and GTS-R-SF Genderism/Transphobia subscale correlated the strongest with scores on the LGBT-DOCSS's Attitudinal Awareness subscale (r = -.62, p < .001 and r = -.84, p < .001, respectively). The robust correlation between the Attitudinal Awareness subscale and the Genderism/Transphobia subscale is an import finding when considering the LGBT-DOCSS is the first published instrument to include specific transgender items. These findings provide initial support that the LGBT-DOCSS is a sensitive measure of transgender-based prejudice. It should be noted that to eliminate grammatical negation, all of the Attitudinal Awareness subscale test items were designed to be reversed scored as a way to reduce participant confusion when answering these questions. While the

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psychometric data in the current study strongly supports factor structure, reliability, and content validity for the Attitudinal Awareness subscale, further research with the LGBT-DOCSS will help examine Attitudinal Awareness items and any potential impact of reverse scoring.

Based on existing research with the SOCCS (Bidell & Whitman, 2013), it was expected that scores on the LGB-CSI Assessment Skills subscale would correlate the strongest with scores on the LGBT-DOCSS's Clinical Preparedness subscale, followed by the Basic Knowledge subscale. Results from Study 3 confirmed this pattern by showing that the Assessment Skills subscale on the LGB-CSI correlated strongest with the LGBT-DOCSS's Clinical Preparedness subscale ($r = .69$, $p < .001$) and less strongly with the Basic Knowledge subscale ($r = .51$, $p < .001$). Study 1 also showed the strongest cross-loadings were between items on the LGBT-DOCSS Clinical Preparedness and Basic Knowledge subscales. Such findings support existing research (Bidell, 2005; Bidell & Whitman, 2013) regarding a conceptual connection between LGBT clinical skills and knowledge. Even though results from the current three studies show clear demarcations between these two dimensions, more research is needed to examine and substantiate if the three factors initially identified for the LGBT-DOCSS are empirically robust, especially between the Clinical Preparedness and Basic Knowledge subscales.

Limitations

Although these three studies provide promising evidence regarding the structure, validity, and reliability of the LGBT-DOCSS, several limitations warrant discussion. The sample composition used for the factor analyses and validity testing overrepresented mental health students and clinicians. Medical health providers and trainees were approximately one-quarter of the overall sample in Study 1 and Study 3, thus results need to be interpreted accordingly. Similarly, the sample was void of nurses, nurse practitioners, physician assistants, allied health

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professionals, and clinical social workers; consequently, future studies are needed with larger numbers of participants from the various health sciences. While including participants from both the US and UK broadens the reach of this new instrument, the applicability of the LGBT-DOCSS will need to be considered when utilized in non-English speaking and non-Western countries and cultures.

The LGBT-DOCSS also shares two similar limitations with the previously discussed LGBT clinical assessments (i.e., SOCCS, LGB-CSI, LGB-CSI-SF, LGB-WACES, and ATLPS). The LGBT-DOCSS relies solely on self-report responses, thus the scale does not include input from LGBT patients/clients, feedback from clinical supervisors and professional peers, nor treatment outcomes. These limitations represent important areas for future research. Like the existing LGBT clinical measures, the LGBT-DOCSS assesses prejudicial attitudes explicitly. Implicit bias is less transparent "often unconscious and occur despite the best intentions . . . [and] can influence medical decisions and interactions, systematically producing discrimination in health care and ultimately disparities in health" (Dovidio & Fiske, 2012, p. 945). Moreover, we are learning that practitioners can self-report positive attitudes about culturally diverse populations, yet also display significant levels of implicit bias (Burke et al., 2015; Boysen & Vogel, 2008; Sabin et al., 2015). Implicit bias research regarding LGBT health disparities represents an important area of continued research, especially as it relates to clinical self-assessment tools such as the LGBT-DOCSS (Sabin et. al., 2015).

While not a traditional limitation, the development, naming, and utility of the LGBT-DOCSS raises questions that are at the core of this *Journal of Homosexuality* special issue–specifically regarding how we conceptualize, define, and assess LGBT clinical competence. Multicultural researchers (see, AAMC, 2014; Sue et al., 1982; Tervalon & Murray-Garcia, 1998)

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initially coined the term *multicultural competency*, which can inadvertently suggest that proficiency with culturally diverse populations is a specific destination that can be mapped out if one acquires select skills, knowledge, and attitudinal awareness. Alternatively, Tervalon and Murray-Garcia (1998) propose that medical education frame clinical multicultural competence as *cultural humility*, which can be a "more suitable goal [as it] . . . incorporates a lifelong commitment to self-evaluation and self-critique, to redressing the power imbalances in the patient-physician dynamic, and to developing mutually beneficial and nonpaternalistic clinical and advocacy partnerships" (p. 117). Cultural humility is now emerging as a educative model and research variable in the health sciences (Chang, Simon, & Dong, 2012) and mental health professions (Hook, Davis, Owen, Worthington, & Utsey, 2013).

Ongoing research and theoretical discussions about what constitutes LGBT competent and culturally humble practitioners are continuing to influence and advance my understanding of the complexity in defining and operationalizing LGBT clinical competence. When naming the new scale, I purposefully avoided using *competency* within the title. Instead, *Development of Clinical Skills* was chosen because it conveys the on-going and developmental nature of becoming prepared, confident, and proficient to work effectively and ethically with LGBT clients/patients. In short, it emphasizes that learning, growth, experience, self-examination, change, and maturity are essential components of LGBT clinical competence. Congruent with this line of reasoning, I caution those interested in utilizing the LGBT-DOCSS to refrain from viewing this new self-assessment as a comprehensive measurement of LGBT clinical competence – the LGBT-DOCSS was not developed to fully elucidate the complex process of becoming LGBT culturally competent.

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Utilizing the LGBT-DOCSS

The LGBT-DOCSS was not developed nor is it intended as a high stakes assessment such as a pass-fail comprehensive degree examination, certification test, or state licensing examination. These types of evaluations are often used in medical and mental health professional education and licensure. They require very stringent forms of "evidence from multiple sources, collected on an ongoing basis and continually reevaluated [by] content specialists, psychometricians and statisticians, test editors and administrators" (Downing, 2003, p. 831-832). The LGBT-DOCSS does not meet any of these stringent assessment standards and was not developed with such uses in mind.

Initial psychometric data from these three studies provides sufficient evidence for researchers, scholars, and educators about the structure, reliability, and validity of the LGBT-DOCSS. The LGBT-DOCSS is well suited for research purposes as an outcome variable. For example, the LGBT-DOCSS can be utilized when examining LGBT clinical development, exploring specific clinician characteristics, or when developing and testing various LGBT training programs and methods. The examination of specific subscale scores can also guide research and training. Studies (Bidell & Whitman, 2013) using the existing LGB mental health self-assessment scales have typically documented that trainees and professionals rate themselves the lowest on LGB clinical skills and the highest on positive and affirming attitudes toward LGB individuals. This pattern was also noted with participants in Study 3, specifically scores on the Clinical Preparedness subscale ($M = 3.51$, $SD = 1.45$) were almost twice as low as Attitudinal Awareness mean scores ($M = 6.52$, $SD = .72$). Examining the impact of a graduate LGBT mental health course, Bidell (2013) found considerable gains in LGB clinical skills "that might be indicative of the benefits regarding experiential activities and assignments, videos, and speaker

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panels on skill-based learning and development" (p. 304). Developing ways to positively impact LGBT clinical skills, attitudinal awareness, and basic knowledge are important areas of future research. And the lower Clinical Preparedness scores highlight the imperative for educators to focus on developing educative methods that facilitate the acquisition of practical tools and skills for health professionals working with LGBT clients and patients.

Another important way the LGBT-DOCSS can be utilized is by facilitating trainees' and providers' self-exploration of their LGBT clinical preparedness, attitudinal awareness, and basic knowledge. Such self-evaluations can be done individually, within a broader training program, or done with a clinical supervisor. Individual self-exploration using the LGBT-DOCSS provides opportunities to tailor specific learning objectives that can strengthen health and mental health providers' clinical work with LGBT clients/patients. The interdisciplinary and international emphasis of the LGBT-DOCSS also provides opportunities for collaborations across healthcare disciplines and countries outside of the United States.

These recommendations for employing the LGBT-DOCSS are by no means exhaustive, and it is my hope the LGBT-DOCSS contributes to the health and wellbeing of LGBT people seeking quality healthcare. While most educators, researchers, and community advocates would likely agree on what is LGBT clinical incompetence, we must continue to deepen our understanding of what it means to be an LGBT culturally competent healthcare practitioner.

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Table 1 Demographic Information and Professional Background

		EFA (*n* = 301) Total Sample (*N* = 602)		CFA (*n* = 301)		Validity & Reliability Estimates (n = 564)	
		n	%	n	%	n	%
Gender	Male	72	23.9	86	28.6	141	25.0
	Female	228	75.7	211	70.1	419	74.3
	Transgender	1	.3	4	1.3	4	0.7
SO	Heterosexual	210	69.8	206	68.4	415	73.6
	Lesbian/Gay	70	23.3	67	22.3	121	21.5
	Bisexual	4	1.3	8	2.7	8	1.4
	Queer	9	3.0	14	4.7	12	2.1
	Prefer not to respond	2	0.7	6	1.9	8	1.4
Country	United Kingdom	130	43.2	112	37.2	303	53.7
	United States	171	56.8	189	62.8	261	46.3
Ethnicity	Caucasian/White	200	66.4	170	56.5	345	61.2
	Black/African Background	13	4.3	26	8.6	41	7.3
	Asian	26	8.6	30	10.0	58	10.3
	Latino	17	5.6	22	7.3	31	5.5
	Mixed	17	5.6	18	6.0	34	6.0
	Other	4	1.3	2	.6	6	1.1
	Prefer not to respond	24	8.0	33	11.0	49	8.7
Professional/ Educational	Undergrad C/P					87	15.4
	Grad C/P Student	127	42.2	115	38.2	202	35.8
	Counselor/Psythrpy	40	13.3	42	14.0	52	9.2
	Applied Psy Ph.D. Stdnt	56	18.6	55	18.3	67	11.9
	Applied Psychologist	15	5.0	19	6.3	30	5.3
	Medical Doctor/GP	53	17.6	59	19.6	97	17.2
	Medical Student	10	3.3	11	3.7	29	5.1

Note. UG P/C Student – Undergraduate psychology or counseling student, Grad C/P Student = graduate level counseling or psychotherapy student, Counselor/Psythrpy = licensed or certified counselor or psychotherapist, Applied Psy Ph.D. Stdnt = applied psychology doctoral student.

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Table 2 Structure Coefficients for LGBT-DOCSS

Item	Factor 1	Factor 2	Factor 3
I feel competent to assess a person who is transgender in a therapeutic setting.	.820	.133	.321
I have received adequate clinical training and supervision to work with transgender clients/patients.	.776	.037	.254
I have experience working with LGB clients/patients.	.750	.152	.470
I feel competent to assess a person who is LGB in a therapeutic setting.	.748	.147	.360
I have experience working with transgender clients/patients.	.737	.046	.348
I have received adequate clinical training and supervision to work with lesbian, gay, and bisexual (LGB) clients/patients	.676	.174	.341
I would feel unprepared talking with a LGBT client/patient about issues related to their sexual orientation or gender identity.	.561	.152	.187
The lifestyle of a LGB individual is unnatural or immoral.	.082	.868	.084
When it comes to transgender individuals, I believe they are morally deviant.	.046	.831	.101
LGB individuals must be discreet about their sexual orientation around children.	.113	.669	.137
I would be morally uncomfortable working with a LGBT client/patient.	.212	.641	.068
I think being transgender is a mental disorder.	.009	.640	.034
A same sex relationship between two men or two women is not as strong and committed as one between a man and a woman.	.170	.482	.058
Allowing children and teenagers who believe they are transgender to take hormones is wrong.	.156	.426	.130
I am aware of research indicating that transgender individuals experience disproportionate levels of health and mental health problems compared to cisgender individuals.	.285	.090	.859
I am aware of institutional barriers that may inhibit transgender people from using healthcare services.	.380	.097	.710
I am aware of institutional barriers that may inhibit LGB people from using health services.	.375	.082	.701
I am aware of research indicating that LGB individuals experience disproportionate levels of health and mental health problems compared to heterosexual individuals.	.289	.096	.698

Note. Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization. Items were numbered so they could be discussed throughout the paper.

Table 3 Mean Scores for the LGBT-DOCSS

	LGBT-DOCSS Total Score	Attitudinal Awareness Subscale	Clinical Skill Subscale	Basic Knowledge Subscale
Study 1: Factor Analyses				
Total Sample (N = 602)	5.02 (.87)	6.52 (.72)	3.51 (1.45)	4.95 (1.51)
EFA (n = 301)	4.89 (.97)	6.53 (.72)	3.54 (1.54)	4.94 (1.54)
CFA (n = 301)	4.89 (.92)	6.52 (.72)	3.55 (1.49)	4.95 (1.49)
Study 3: Content Validity (N = 564)	4.85 (.93)	6.41 (.86)	3.21 (1.53)	4.54 (1.75

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Table 4 Convergent and Divergent Correlation Matrix

	LGBT-DOCSS/ Total	LGBT-DOCSS/ CP	LGBT-DOCSS/ AA	LGBT-DOCSS/ BK	RWA-S	GTS-R-SF G/T	LGB-CSI AS	MCSD SF-A
LGBT- DOCSS/Total		.87**	.51**	.80**	-.45**	-.51**	.66**	-.16**
LGBT-DOCSS/CP			.20**	.50**	-.19**	-.27**	.69**	-.09
LGBT-DOCSS/AA				.17**	-.62**	-.84**	.12*	-.08
LGBT-DOCSS/BK					-.31**	-.21**	.51**	-.21**
RWA-S						.61**	-.18**	.12*
GTS-R-SF G/T							-.14**	.06
LGB-CSI AS								-.07

Note. LGBT- DOCSS/Total = Total scale scores; LGBT-DOCSS/CP = Clinical Preparedness subscale scores; LGBT-DOCSS/AA = Attitudinal Awareness subscale scores; LGBT-DOCSS/BK = Basic Knowledge subscale scores; RWA = Right-wing Authoritarianism-Short form scale, the items focusing on sexuality; GTS-R-SF G/T = Genderism and Transphobia Scale-Revised-Short Form, the items on the Genderism/ Transphobia subscale; LGB-CSI = Lesbian, Gay, and Bisexual Affirmative Counseling Self-Efficacy Inventory, the items on the Assessment Skills subscale; MCSDS-SF-A = Marlowe-Crowne Social Desirability-Short Form-A.

*$p < .05$, **$p < .001$

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Appendix A: LGBT-DOCSS

Instructions: Items on this scale are intended to examine clinical preparedness, attitudes, and basic knowledge regarding lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please use the provided scale to rate your level of agreement or disagreement for each item. Please note, items on this scale primarily inquire about either sexual orientation (LGB = lesbian, gay, and bisexual) or gender identity (transgender). Two questions are inclusive and refer collectively to lesbian, gay, bisexual, and transgender (LGBT) clients/patients.

1. I am aware of institutional barriers that may inhibit transgender people from using healthcare services.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

2. I am aware of institutional barriers that may inhibit LGB people from using health services.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

3. I think being transgender is a mental disorder.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

4. I would feel unprepared talking with a LGBT client/patient about issues related to their sexual orientation or gender identity.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

5. A same sex relationship between two men or two women is not as strong and committed as one between a man and a woman.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

6. I am aware of research indicating that LGB individuals experience disproportionate levels of health and mental health problems compared to heterosexual individuals.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

7. LGB individuals must be discreet about their sexual orientation around children.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

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8. I am aware of research indicating that transgender individuals experience disproportionate levels of health and mental health problems compared to cisgender individuals.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

9. When it comes to transgender individuals, I believe they are morally deviant.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

10. I have received adequate clinical training and supervision to work with transgender clients/patients.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

11. I have received adequate clinical training and supervision to work with lesbian, gay, and bisexual (LGB) clients/patients

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

12. The lifestyle of a LGB individual is unnatural or immoral.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

13. I have experience working with LGB clients/patients.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

14. I feel competent to assess a person who is LGB in a therapeutic setting.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

15. I feel competent to assess a person who is transgender in a therapeutic setting.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

16. I have experience working with transgender clients/patients.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

17. People who dress opposite to their biological sex have a perversion.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

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18. I would be morally uncomfortable working with a LGBT client/patient.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

Scoring Instruction for the LGBT-DOCSS

1) Reverse score all 8 questions in parentheses: (3), (4), (5), (7), (9), (12), (17), and (18). Use the reverse scoring Likert scale (1 = 7, 2 = 6, 3 = 5, 4 = 4, 5 = 3, 6 = 2, 7 = 1).

2) Calculate total LGBT-DOCSS mean score: Add all test items (using the reverse score for items in parentheses) and divide by 18.

> The total LGBT-DOCSS mean score is equal to: 1 + 2 + (3) + (4) + (5) + 6 + (7) + 8 + (9) + 10 + 11 + (12) + 13 + 14 + 15 + 16 + (17) + (18) = LGBT-DOCSS Total Raw Score. Divide by 18 to obtain mean score.

3) Calculate Subscale scores: For each subscale, add up the scores of the questions listed (using the reverse score for items in parentheses) and divide by the number of questions in each subscale.

> **Clinical Preparedness subscale**: (4) + 10 + 11 + 13 + 14 + 15 + 16 = LGBT-DOCSS Clinical Preparedness subscale Total Raw Score. Divide by 7 to obtain mean score.
>
> **Attitudes subscale**: (3) + (5) + (7) + (9) + (12) + (17) + (18) = LGBT-DOCSS Attitudes subscale Total Raw Score. Divide by 7 to obtain mean score.
>
> **Knowledge**: 1 + 2 + 6 + 8 = LGBT-DOCSS Knowledge subscale Total Raw Score. Divide by 4 to obtain mean score.

4) Higher scores are indicative of higher levels of clinical preparedness and rudimentary knowledge and less prejudicial attitudinal awareness regarding LGBT clients/patients. Scoring instructions are not initially provided to potential respondents and typically not provided to research participants.

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